

ABSTRACT OF THE DISCLOSURE

A system and method for deriving a process-based specification for a system is disclosed. The process-based specification is mathematically inferred from a trace-based specification. The trace-based specification is derived from a non-empty set of traces or natural language scenarios. The process-based specification is mathematically equivalent to the trace-based specification. Code is generated, if applicable, from the process-based specification. A process, or phases of a process, using the features disclosed can be reversed and repeated to allow for an interactive development and modification of legacy systems. The process is applicable to any class of system, including, but not limited to, biological and physical systems, electrical and electro-mechanical systems in addition to software, hardware and hybrid hardware-software systems.